Lancashire & South Cumbria Medicines Management Group

NHS

Guidelines for the Home Monitoring of Blood Glucose Levels

Version 1.1– September 2019

VERSION CONTROL		
Version	**Date**	**Amendments made**
Version 1	May 2017	New Guideline. AG.
Version 1.1	September 2019	Weekly testing guidance removed. Other types of testing guidance updated. Information on flash glucose monitoring added. PT

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INTRODUCTION

Self monitoring of blood glucose levels is an integral part of treatment for all patients with type I diabetes mellitus (DM) and select cohorts of patients with type II DM. Improved glycaemic control may be facilitated by effective blood glucose monitoring, which may ultimately improve long-term patient outcomes.

PURPOSE AND SUMMARY

The purpose of this guideline is to assist primary care practitioners to advise patients of the appropriate monitoring regimen for their clinical condition and diabetes type and to ensure appropriate volumes of testing strips are supplied.

Table 1 provides a brief summary of the monitoring requirements and quantity of test strips to provide for each patient cohort listed. Full details of the monitoring requirements can be found in the full guidance document on page 4.

SCOPE

Primary care healthcare practitioners that are responsible for advising and prescribing for patients with type I and type II DM.

IMPORTANT INFORMATION

Self-monitoring of blood glucose levels should only be carried out by patients that have been suitably trained. All patients groups that regularly self monitor should have their monitoring technique and ability to interpret results reviewed **at least annually.**

Table 1: Summary - Patient Cohort, Monitoring Level and supply Quantity

Number	Patient Cohort	Monitoring Level	Quantity to supply
1	ALL pregnant women with diabetes	Level 3 - Intense	100 (ONE week supply)
2	Unstable Type I DM patients with loss of hypoglycaemic warning signs	Level 3 - Intense	100 (ONE week supply)
3	ALL patients with insulin pumps	Level 3 - Intense	100 (ONE week supply)
4	Patients using self-adjusted basal-bolus regimens	Level 3 - Intense	100 (ONE week supply)
5	Type I or II DM patient during a change of insulin regimen	Level 3 - Intense	100 (ONE week supply)
6	Type I DM patient that is unwell – sick day rules	Level 3 - Intense	100 (ONE week supply)
7	Patients with Type I DM on up to FIVE doses of insulin per day	Level 2 - Regular	50 (ONE week supply)
8	Patients with Type II DM who are on multiple doses of insulin with or without additional oral hypoglycaemic agents	Level 2 - Regular	50 (ONE week supply)
9	Patients with Type II DM taking sulphonylureas or glinides with or without other oral agents	Level 1 - Daily	50 (TWO months supply)
10	Type II DM receiving basal insulin with or without oral agents	Level 1 - Daily	50 (TWO months supply)

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Choose Correct Patient Cohort

Please note: Patients with type II DM controlled by diet and exercise alone or medicines other than insulin and sulfonylureas do not routinely need to test. Testing is at the discretion of the health care professional e.g. if patient becomes symptomatic or there is acute deterioration in HbA1C.

LEVEL 3 – INTENSIVE

1. ALL pregnant women with diabetes
2. Unstable Type I DM with frequent hypoglycaemic episodes
3. ALL patients with insulin pumps
4. Patients using self-adjusted basal-bolus regimens
5. Type I or II DM patient during a change of insulin regimen
6. Type I DM patient that is unwell – sick day rules

LEVEL 2 – REGULAR

7. Patients with Type I DM on up to FIVE doses of insulin per day
8. Patients with Type II DM who are on multiple doses of insulin with or without additional oral hypoglycaemic agents

LEVEL 1 – DAILY

9. Patients with Type II DM taking sulphonylureas or glinides with or without other oral agents
10. Type II DM receiving basal insulin with or without oral agents

Recommended Monitoring Regimen

Adults: FOUR up to a maximum of TEN blood glucose (BG) levels to be taken daily (**level 3**) or **FOUR up to a maximum of SIX** times daily (**level 2**) **and** prior to physical activity (**level 2&3**)
Children and Young People: FIVE up to a maximum of TEN BG levels daily (**level 3**) or minimum **FIVE** daily **plus** pre and post physical activity BG levels (**level 2**).
The following testing intervals apply to levels 2&3:
Fasting and pre-prandial, TWO hours post-prandial (level 3 only), pre-bed, if hypoglycaemia is suspected AND TWO hours prior to driving and every subsequent TWO hours of driving (DVLA requirement)*

Adults: At least **ONCE daily**, as a fasting level, before or **TWO** hours after meals, **and TWO hours prior to driving and every subsequent TWO hours of driving (DVLA requirement)***

Criteria for Increased Monitoring

Please note: Changes to treatments e.g. (moving onto insulin/adjustment of insulin regimens) may require increased monitoring until diabetes control returns to baseline.

The patient should be advised to increase monitoring frequency (> TEN daily) if:

1. Loss or further loss of hypoglycaemic awareness
2. Unexpected BG levels
3. Extended periods of driving

Increase monitoring regimen to level 3 requirements in the following situations:

1. Unwell – sick days rules
2. Recurrent hypoglycaemia
3. Unexpected BG levels

Increase monitoring regimen to level 2 requirements in the following situations:

1. Persistent fasting glucose > 7mmol/L
2. Persistent post-prandial glucose level > 10mmol/L
3. HbA1c is above target
4. Recurrent hypoglycaemia

Quantity of consumables to Supply

100 test strips (2 boxes of 50) – approximately ONE week supply

50 test strips (1 box of 50) – approximately ONE week supply

50 test strips (1 box of 50) – approximately TWO months supply (additional test strips may be necessary to comply with DVLA testing requirements)

Please note: Adults: HbA1c should be measured every 3 – 6 months or as advised by the specialist service. **Infants, Children and Young People:** All patients under the age of 18 should have their HbA1c monitored **at least** FOUR times per year. ***Please note:** The DVLA advise that carbohydrate should be consumed if BG level is <5mmol/L before driving.

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Patients Using Flash Glucose Monitoring

Flash Glucose Monitoring (i.e. Freestyle Libre) measures interstitial fluid glucose levels. The system comprises a sensor and a reader. The sensor is designed to stay in place for 14 days. It is applied to the skin, usually on the upper arm. Glucose levels are automatically measured every minute and stored at 15-minute intervals for 8 hours. Glucose levels can be seen at any time by scanning the reader over the sensor. At each scan, the reader displays current glucose levels, levels over the previous 8 hours, and whether glucose levels are trending upwards or downwards (and how fast). This is called the ambulatory glucose profile. For a full 24 hours of data, users must scan the sensor at least once every 8 hours.

Flash Glucose Monitoring is intended to be used as an alternative to routine finger-prick blood glucose monitoring for people aged 4 or over with type 1 diabetes. However, **finger-prick blood glucose monitoring is still indicated in the following circumstances**:

- During times of rapidly changing glucose levels – interstitial fluid glucose levels may not accurately reflect blood glucose levels during these times
- If the flash monitoring system indicates hypoglycaemia or impending hypoglycaemia
- When symptoms experienced by the patient do not match the flash monitoring system readings.

NHS England has provided guidance[1] on reimbursement for Flash Glucose Sensors which was modelled on the expectation that patients would use two fewer testing strips per day once commenced on the flash monitoring system.

The necessary number of boxes of testing strips will depend on individual patient circumstances and the prescribers clinical judgement.

However, based on the NHS England modelling data it would be anticipated that following commencement of Flash Glucose Monitoring, patients will require at least one fewer box of test strips to be prescribed per month.

The Lancashire and South Cumbria policy on the use of flash glucose monitoring devices, including eligibility criteria, can be found at:

http://www.lancsmmg.nhs.uk/download/guidelines/Policy-for-Glucose-Monitoring-Devices-V1.1-March-19-amends.pdf

1. NHS England, Flash Glucose Monitoring: National Arrangements for Funding of Relevant Diabetes Patients, Available at https://www.england.nhs.uk/wp-content/uploads/2019/03/flash-glucose-monitoring-national-arrangements-funding-v1.1.pdf (Accessed June 2019)

BIBLIOGRAPHY

[1] UK Driver and Vehicle Licensing Agency, “DIAB1,” UK Driver and Vehicle Licensing Agency, London , 2017.

[2] National Institute for Health and Care Excellence, “Type 2 diabetes in adults: management (NG 28),” NICE, Manchester, 2015.

[3] National Institute for Health and Care Excellence, “Type 1 diabetes in adults: diagnosis and management (NG17),” NICE, Manchester, 2015.

[4] American Diabetes Association, “Standards of Medical Care in Diabetes,” American Diabetes Association, Danvers, 2019.

[5] Canadian Diabetes Association, “Clinical Practice Guidelines of the Canadian Diabetes Association,” Canadian Diabetes Association, Toronto, 2018.

[6] Diabetes UK, “Self monitoring of blood glucose (SMBG) for adults with Type 2 diabetes.,” Diabetes UK, London, 2012.

[7] Diabetes UK, “Self monitoring of blood glucose (SMBG) for adults with Type 1 diabetes.,” Diabetes UK, London , 2012.

[8] NICE Medtech innovation briefing, FreeStyle Libre for glucose monitoring, July 2017

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